Appendix D. Air Quality Technical Memorandum, Record of Non Applicability, and Greenhouse Gas Emission Calculator Worksheets

Air Quality Technical Memorandum

Prepared For: Montana Army National Guard (MTARNG)

Prepared By: Jacobs Engineering Group Inc. (Jacobs)

Date: 17 November 2021

1. Introduction

The Montana Army National Guard (MTARNG), in coordination with the National Guard Bureau (NGB), is proposing to develop and operate a Limited Army Aviation Support Facility (LAASF) out of a hangar in Billings, Montana located immediately west of the Billings Logan International Airport (Figure 1).

This technical memorandum presents the existing conditions, impact assessment, and applicable mitigation measures related to Air Quality.

1.1 Regulatory Context

Due to the Clean Air Act, the U.S. Environmental Protection Agency (EPA) has created National Ambient Air Quality Standards (NAAQS) for seven pollutants that harm human health and the environment. Primary standards are for the protection of public health. Secondary standards are for the protection of public welfare, such as impacts on natural resources, vegetation, property, and visibility. A geographical area (such as a county or air basin) that meets these standards is designated as in attainment. An area that does not meet the standards is designated nonattainment, and the state is required to develop a State Implementation Plan (SIP) with regulations that are designed to reduce the concentration of that pollutant. An area that had been designated as nonattainment and later designated as attainment is a called a maintenance area. Billings is currently a maintenance area for sulfur dioxide and carbon monoxide and is in attainment for all other pollutants.

If the proposed action takes place in a nonattainment or maintenance area, the EPA General Conformity Rule (40 CFR Part 51, Subpart W and 40 CFR Part 93, Subpart B) is applicable. The General Conformity Rule establishes *de minimis* thresholds for criteria pollutants and their precursors. The attainment status of the area determines which threshold is applicable. If projected net emissions from an action exceed a General Conformity threshold, the action may adversely impact the goals of the SIP. For actions that do exceed a threshold, further analysis is recommended.

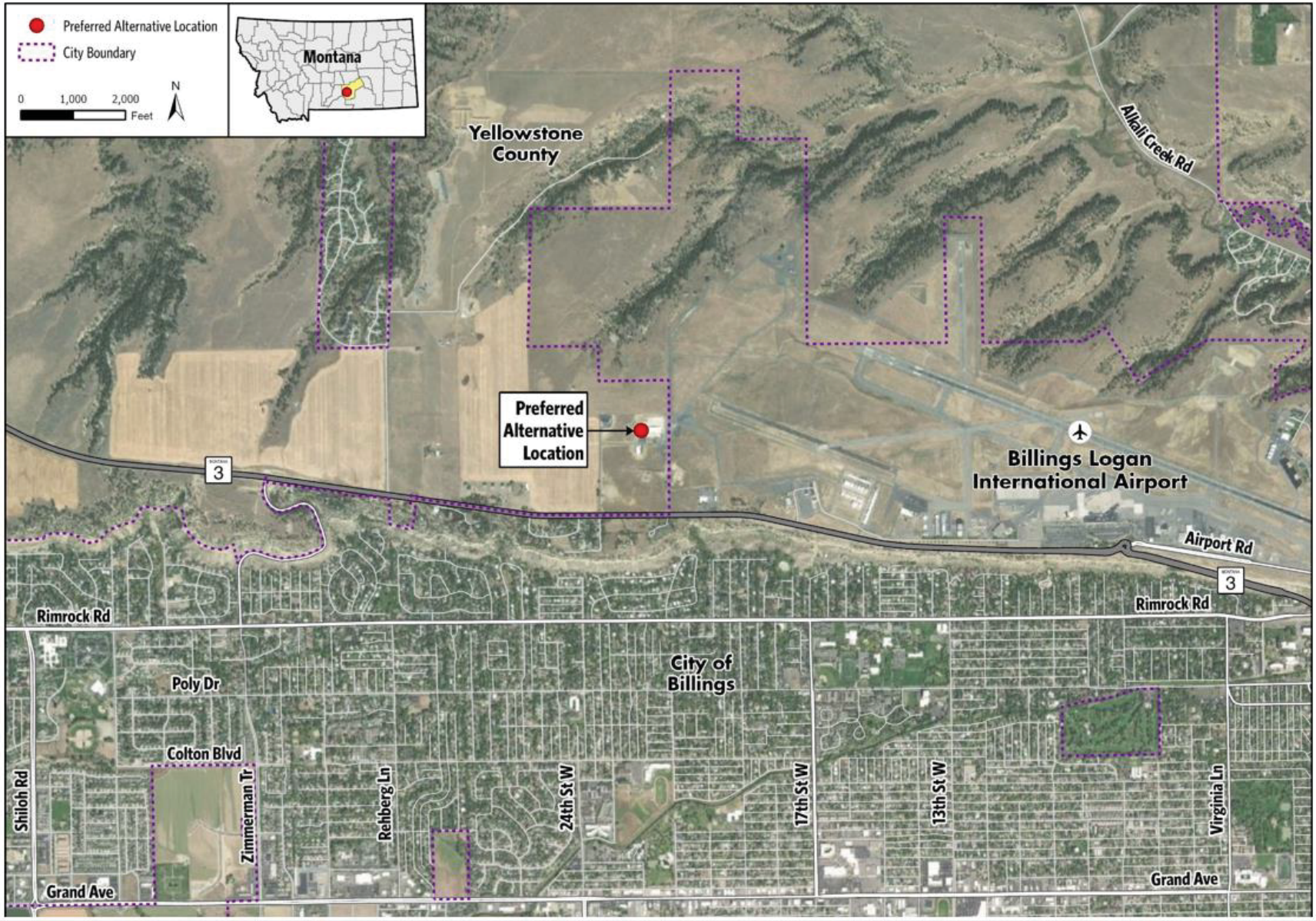

Figure 1. Preferred Alternative Location

2. Project Description

In Montana and around the country, the Army National Guard (ARNG) prepares helicopter crews to effectively fight and serve on missions from security and combat to disaster relief and rescue operations. These flight operations are flown out of Army Aviation Support Facilities or AASFs. An AASF is a facility that provides maintenance, modification of ARNG equipment, operations, and logistical support for seven or more ARNG aircraft. There are approximately 100 AASFs situated around the country, and only one is in Montana. Montana Army National Guard (MTARNG) operates an AASF at the Helena Regional Airport in western Montana. The Helena AASF is co-located with the Helena Aviation Readiness Center and a hangar for fixed-wing Beechcraft C-12 Huron transport aircraft. The 1-189th General Support Aviation Battalion is stationed at this location, and here, MTARNG trains soldiers, maintains and repairs helicopters, and when needed, deploys personnel to address emergency or military situations. Flights leave and return via the Helena Regional Airport runway.

MTARNG seeks to expand aviation capabilities to the eastern portion of Montana to better accommodate soldier training and the community by having assets more readily available in that geographic region. The Proposed Action is to operate a Limited AASF (LAASF) out of an existing hangar in eastern Montana. An LAASF provides the same functions as an AASF but supports only six or fewer aircraft.

2.1 Purpose of the Project

The purpose of the proposed action is to expand MTARNG aviation capabilities and fill an existing coverage deficiency for helicopters reaching portions of eastern Montana. This would provide soldiers on the eastern side of the state with more accessible training, improve response time to assist in emergency situations, increase training opportunities with interagency partners, and reduce operational costs.

2.2 Need for the Project

Additional aviation support to serve eastern Montana is needed to:

- Improve coverage and availability for military training and rescue response
    - Emergency response time
    - Prioritizing people and work-life balance
    - Enhance/expand training opportunities and enable flight operations
- Reduce costs
    - Reduced need for flights between Helena and locations in eastern Montana (fuel, time, aircraft wear and tear)
    - Reduced travel to Helena for training/duty for soldiers

A location is needed that has or can accommodate a hangar for the helicopters needed for training and operations. In addition, air traffic control is needed so training can take place in all weather conditions.

2.3 Description of the No Action Alternative

Under the No Action Alternative, no new aviation facilities would be operated on the eastern side of Montana. Training and emergency responses would continue to occur out of Helena. Emergency response by MTARNG to eastern Montana would require the time to mobilize, fly from Helena to Billings (approximately 1.5 hours) and refuel (approximately 1 hour) when weather permits. MTARNG personnel from eastern parts of Montana would travel to Helena monthly for drill weekends.

2.4 Description of the Preferred Alternative

The LAASF would be located in a hangar that is privately-owned by Billings Flying Service (BFS), located immediately west of the Billings Logan International Airport (refer to Figure 1). Up to two temporary portable offices would be located on the property adjacent to the hangar. Personal vehicles would be parked in the gravel or asphalt lot adjacent to the hangar. The hangar is served by electricity and a septic system. Water is provided via a cistern.

The 14 fulltime personnel would live in their personal residences in Billings or the surrounding area and commute to the hangar daily. On drill weekends, the estimated 90 personnel would travel to the hangar from their residences. Given that Billings is the largest community in Montana and the higher number of MTARNG personnel who live in Billings compared to other locations, it is estimated that 20-30 soldiers would stay in local hotels during drill weekends. Flights during drill weekends would occur primarily during the day, but at least one-night flight per weekend would occur with the aircraft returning after dark, the timing of which would vary with the season.

Maintenance hover runs or flights would be 10 minutes or less per aircraft, when required, and would be conducted at the airport, away from established buildings. Maintenance test flights would follow established flight patterns north of Billings. The LAASF would support up to six (6) helicopters (including but not limited to the CH-47 [Chinook], UH-60 [Blackhawk], and UH-72 [Lakota]). No more than two maintenance test flights per helicopter per week are anticipated. Refueling would be done on-site, using a 5,000-gallon over-the-road tanker and a heavy expanded mobility tactical truck (HEMTT).

Annual training (AT) could occur at the LAASF about once every five years, likely beginning in 2026. Unlike other ATs where multiple units may train together, only the unit assigned to the LAASF would participate at these periodic events. Training activities (number of people, flights, etc.) would be the same as on a drill weekend but would extend over a two-week period.

The MTARNG would also aid local search and rescue services, along with assist local law enforcement when needed.

The LAASF would begin operations at the end of fiscal year (FY) 2022 or FY 2023 using federal funding. These facilities would fulfill needs in the short-term (approximately 5 to 10 years), but a larger, long-term facility would be needed in the future to accommodate the emerging growth needs and coverage requirements of the MTARNG aviation assets.

3. Methodology

Air quality impacts of the Preferred Alternative were estimated based on the net change of emissions. Implementation of the Preferred Alternative would increase the aircraft activity at the Billings Logan International Airport. Net emissions were evaluated using guidance found in the *Air Emissions Guide for Air Force Mobile Sources* (AFCEC 2020).

Aircraft emissions were estimated using the number of landing and take-offs (LTOs) and the number and duration of low flight patterns (LFPs). LTO counts were applied to engine setting profiles found in Table 2-4 of the Mobile Guide (AFCEC 2020) to determine total time in engine mode. Emission factors and fuel flow rates found in Table 2-8 of the same guidance were also used. Emission estimates for the CH-47 Chinook and the UH-72 Lakota were made using a surrogate aircraft. The CH-53 Sea Stallion emission profile was used as a surrogate for the CH-47 Chinook. The MH-139 was used as a surrogate for the UH-72 Lakota. Surrogates were selected based on similar mission capabilities, engine type and size. The equation for emissions is:

$$Emissions_P = T_{E,M} * FFR_{E,M} * EF_{P,E,M} * N_a$$

Where,

$Emissions_P$	= Emissions of each pollutant
$T_{E,M}$	= Operating Time for each engine and mode
$FFR_{E,M}$	= Fuel Flow Rate for each engine and mode
$EF_{P,E,M}$	= Emission Factor for each pollutant, engine and mode
N_a	= Number of engines for each aircraft

A summary of the LTO data used can be found in Table 3-1.

Table 3-1. Proposed Additional Annual Aircraft Operations
Aircraft Operations by Aircraft Type and Sortie

Aircraft	LTO Count	LFP Count	LFP Duration (min)
CH-47 Chinook	122	1171	2.9
UH-60 Black Hawk	122	1171	2.9
UH-72 Lakota	122	659	2.9

Auxiliary Power Units (APUs) were also included in the analysis of emissions for the UH-60 Black Hawk. An APU is a small engine that provides power to an aircraft before or after take-off while the aircraft engine is not on. An APU typically operates for 1 hour per Black Hawk LTO.

Military tactical vehicles were estimated based on vehicle miles traveled. Heavy Expanded Mobility Tactical Trucks (HEMMTs), High Mobility Multipurpose Wheeled Vehicles (HMMWVs or Humvees), and Light Military Tactical Vehicles (LMTVs) were included in the analysis. Proposed annual military operations are included in Table 3-2. HEMMTs were modeled as Heavy-Duty Diesel Vehicles (HDDVs) and LMTVs and Humvees were modeled as Light Duty Diesel Vehicles (LDDV). Emission factors from Table 5-21 of the AFCEC Mobile Guidance (AFCEC 2020) were applied to mileage estimates. Forklift operation was estimated using emission factors from Table 3-6 of the AFCEC Mobile Guidance (AFCEC 2020). The forklift annual usage was estimated as 104 hours per year, with an engine size of 55 horsepower and a 30% load factor.

Table 3-2. Proposed Annual Military Vehicle Operations
Tactical Vehicle Population Estimate

Aircraft	Number of Vehicles
HEMMT	4
LMTV	2
HMMWV	8

4. Existing Conditions

The USEPA determines if geographical areas meet federal national ambient air quality standards and state-specific air quality standards. If an area meets the standards, it is considered to be an “attainment area.” If an area does not meet a standard for a specific pollutant, it is referred to as a “nonattainment area.” Once a state has taken measures to reduce emissions and the area has met the standards and additional redesignation requirements in the Clean Air Act, it can be redesignated as a “maintenance area.” Table 4-1 provides the state and federal standards for each criteria pollutant that the USEPA monitors. Billings is a maintenance area for the carbon monoxide and sulfur dioxide.

Table 4-1. National Ambient Air Quality Standards

Air Pollutant	Average Time	Federal National Ambient Standards		Montana Ambient Air Quality Standards
		Primary	Secondary	All
Carbon monoxide	1-hour	35 ppm(1)	--	23 ppm
	8-hour	9 ppm	--	9 ppm
Nitrogen dioxide	1-hour	100 ppb(2)	--	0.30 ppm
	Annual	53 ppb	53 ppb	0.05 ppm
Ozone	8-hour	0.07 ppm	0.07 ppm	--
	1-hour	--	--	0.10 ppm
PM_{10}	24-hour	150 µg/m^3 (3)	--	150 µg/m^3
	Annual	--	--	50 µg/m^3
$PM_{2.5}$	24-hour	35 µg/m^3	35 µg/m^3	--
	Annual	12 µg/m^3	15 µg/m^3	--
Settled Particulates	30-day average	--	--	10 g/m^2 (4)
Sulfur dioxide	1-hour	75 ppb	--	0.50 ppm
	3-hour	--	0.50 ppm	--
	24-hour	0.14 ppm	--	0.10 ppm
	Annual	0.03 ppm	--	0.02 ppm
Lead	90-day Calendar Quarter	0.15 µg/m^3	0.15 µg/m^3	1.5 µg/m^3
Hydrogen sulfide	1-hour	--	--	0.05 ppm
Visibility	Annual	--	--	3x10^{-5}/m scattering coefficient

Source: USEPA 2021c and State of Montana 2021

(1) ppm = parts per million; (2) ppb = parts per billion; (3) µg/m^3 = microgram per cubic meter (4) g/m^2 = grams per square meter

5. Impact Assessment

Emissions were found to have minimal impact on current air quality. Emission estimates were found to be very low, and not in exceedance of any threshold that may indicate a potential significant impact. Emission estimates can be found in Table 5-1.

Table 5-1. Estimated Annual Emissions (tons)

Criteria Pollutant Emissions (tons) by Activity

Activity	NOx (ton)	SOx (ton)	CO (ton)	VOC (ton)	PM10 (ton)	PM2.5 (ton)
CH-47 LTO	0.39	0.03	0.47	0.17	0.09	0.08
CH-47 LFP	0.83	0.05	0.1	0.03	0.14	0.12
UH-72 LTO	0.04	0.01	0.92	0.05	0.05	0.05
UH-72 LFP	0.05	0.01	0.35	0.03	0.04	0.04
UH-60 LTO	0.19	0.01	0.25	-	0.04	0.03
UH-60 LFP	0.42	0.02	0.13	-	0.08	0.07
UH-60 APU	0.06	0.02	0.58	-	-	-
HEMMT	1.3E-03	3.2E-06	4.7E-04	1.3E-04	3.4E-05	3.1E-05
LMTV	2.0E-04	2.0E-06	4.6E-04	1.4E-04	4.0E-06	4.0E-06
HMMWV	1.6E-04	1.6E-06	1.8E-03	1.1E-04	3.2E-06	3.2E-06
Forklift	1.9E-02	1.6E-03	1.3E-02	3.6E-03	2.3E-03	2.2E-03
Total:	**2.00**	**0.15**	**2.82**	**0.28**	**0.44**	**0.39**

5.1 No Action Alternative

The No Action Alternative would not result in a change from the current operation and would require current levels of commuting for the soldiers.

5.2 Preferred Alternative

The Preferred Alternative would result in minimal emission increases from aircraft and APUs. The increases due to increased aircraft operations were found to be insignificant when compared to the General Conformity thresholds. Table 5-2 gives a summary of estimated emissions with comparison to those thresholds.

Table 5-2. Estimated LAASF Annual Emissions and General Conformity De Minimis Thresholds (tons/year)

Pollutant	NO_x	SO_x	CO	VOC	PM_{10}	$PM_{2.5}$
Estimated Emissions	2.0	0.15	2.8	0.28	0.44	0.39
General Conformity Threshold	100	100	100	100	100	100
Potentially Significant Impact	No	No	No	No	No	No

Since the training and maintenance that would occur at the LAASF is currently occurring at the Helena AASF, the emissions would not be new, but rather relocated from Helena to Billings. Further, the emissions that would be generated travelling between Helena to Billings to respond to emergencies, both by aircraft and soldiers travelling to Helena to report to duty, would no longer be required. Overall, the net change of emission due to this action, when also considering the vehicle emissions, is likely to be a reduction in emissions or neutral.

6. Mitigation Measures

No mitigation measures for the Preferred Alternative are recommended at this time.

7. References

Air Force Civil Engineer Center (AFCEC). 2020. *Air Emissions Guide For Air Force Mobile Sources*

Montana Army National Guard (MTARNG). 2021. Billings MTARNG Data Validation Package

Record of Non-Applicability (RONA)

In Accordance with the Clean Air Act General Conformity Rule (40 CFR Part 51)

Development and Operation of a Limited Army Aviation Support Facility in Billings, Montana

1.0 Action Description

The Montana Army National Guard (MTARNG), in coordination with the National Guard Bureau (NGB), is proposing to develop and operate a Limited Army Aviation Support Facility (LAASF) out of an existing hangar in Billings, Montana located immediately west of the Billings Logan International Airport. The LAASF would support up to 6 helicopters (including but not limited to the CH-47 [Chinook], UH-60 [Blackhawk], and UH-72 [Lakota]). The LAASF would also operate military tactical vehicles. Operation of 4 Heavy Expanded Mobility Tactical Trucks (HEMMTs), 8 High Mobility Multipurpose Wheeled Vehicles (HMMWVs or Humvees), 2 Light Military Tactical Vehicles (LMTVs), and 1 forklift were included in the analysis. Operations would begin during the fourth quarter of FY 2022 or first quarter of FY 2023.

2.0 Analysis

General Conformity under the Clean Air Act, Section 176 was evaluated according to the requirements of 40 CFR 93, Subpart B. Total emissions were estimated on a calendar-year basis for steady state operations. Emissions were estimated using guidance found in the Air Force Civil Engineer Center (AFCEC) *Air Emissions Guide for Air Force Mobile Sources* (2020).

Based on the estimated emissions, the requirements of this rule are not applicable because they are below the General Conformity threshold values. Supporting documentation and emission estimates are attached.

22 March 2022

LTC Adel Johnson
Environmental Program Manager
Montana Army National Guard

Date

Air Emission Calculations

Summary Tables

Table 1. LAASF Annual Emissions and General Conformity De Minimis Thresholds (tons/year)

	NO_x	SO_x	CO	VOC	PM_{10}	$PM_{2.5}$
Total Steady State Emissions	2.0	0.15	2.8	0.28	0.44	0.39
General Conformity Threshold	100	100	100	100	100	100

Table 2. Emissions by Activity (tons/year)

Activity	NO_x	SO_x	CO	VOC	PM_{10}	$PM_{2.5}$
CH-47 Landing / Take-off (LTO)	0.39	3.00E-02	0.47	0.17	0.09	0.08
CH-47 Low Flight Pattern (LFP)	0.83	5.00E-02	0.1	0.03	0.14	0.12
UH-72 LTO	0.04	1.00E-02	0.92	0.05	0.05	0.05
UH-72 LFP	0.05	1.00E-02	0.35	0.03	0.04	0.04
UH-60 LTO	0.19	1.00E-02	0.25	-	0.04	0.03
UH-60 LFP	0.42	2.00E-02	0.13	-	0.08	0.07
UH-60 Auxiliary Power Unit (APU)	0.06	2.00E-02	0.58	-	-	-
HEMMT	1.3E-03	3.2E-06	4.7E-04	1.3E-04	3.4E-05	3.1E-05
LMTV	2.0E-04	2.0E-06	4.6E-04	1.4E-04	4.0E-06	4.0E-06
HMMWV	1.6E-04	1.6E-06	1.8E-03	1.1E-04	3.2E-06	3.2E-06
Forklift	1.9E-02	1.6E-03	1.3E-02	3.6E-03	2.3E-03	2.2E-03
Total:	2.00	0.15	2.82	0.28	0.44	0.39

Table 3. Aircraft Operational Data

Aircraft	LTO Count	LFP Count	Duration of LFP (min)
CH-47	122	1171	2.9
UH-60	122	1171	2.9
UH-72	122	659	2.9

Table 4. On-road Vehicle Operational Data

Vehicle Type	Classification	Total Vehicle Miles Traveled
HEMMT	HDDV	240
LMTV	LDDT	120
HMMWV	LDDT	480

Table 5. Off-road Vehicle Operational Data

Engine Type	Horsepower Rating	Load Factor	Hrs/Year
Forklift (Diesel)	55	30	104

Table 6. Aircraft Emission Factors

Aircraft / Mode[1],[2]	Fuel Flowrate (lb/hr)	NO_x (lb/1000lb fuel)	SO_x (lb/1000lb fuel)	CO (lb/1000lb fuel)	VOC (lb/1000lb fuel)	PM_{10} (lb/1000lb fuel)	$PM_{2.5}$ (lb/1000lb fuel)
CH-47 / Idle	260	2.62	0.56	51.83	19.87	2.36	2.12
CH-47 / Approach	1287	8.54	0.56	1.94	0.4	1.97	1.77
CH-47 / Intermediate	1511	9.65	0.56	1.2	0.38	1.61	1.45
CH-47 / Military	1661	10.92	0.56	0.67	0.39	1.61	1.45
CH-47 / Afterburner	1721	11.42	0.56	0.49	0.31	1.61	1.45
UH-60 / Idle	134	3.36	0.56	46.24	0.5	1.48	1.33
UH-60 / Approach	469	10.95	0.56	5.12	0.02	1.26	1.13
UH-60 / Intermediate	626	11.87	0.56	3.51	0.01	2.22	2.00
UH-60 / Military	725	11.43	0.56	2.81	0.01	2.61	2.33
UH-72 / Idle	156	1.77	0.56	117.85	7.89	3.95	3.56
UH-72 / Approach	180	1.95	0.56	94.99	1.33	4.18	3.76
UH-72 / Intermediate	328	5.03	0.56	33.69	3.29	4.15	3.73
UH-72 / Military	449	4.73	0.56	10.91	0.71	3.34	3.01
UH-72 / Afterburner	612	8.18	0.56	3.88	0.20	4.30	3.87

(1) Air Emissions Guide for Air Force Mobile Sources, AFCEC (2020), Table 2-8

(2) Emission factors for engines T64-GE-413, T700-GE-700, and PT6A-68 used for CH-47, UH-60 and UH-72 respectively.

Table 8. APU Emission Factors (lb/hr)

Engine[1]	NO_x	SO_x	CO	VOC	PM_{10}	$PM_{2.5}$
UH-60 APU	1.01	0.25	9.46	0.04	-	-

(1) Air Emissions Guide for Air Force Mobile Sources, AFCEC (2020), Table 2-8

Table 8. Vehicle Emission Factors

Vehicle	NO_x	SO_x	CO	VOC	PM_{10}	$PM_{2.5}$
HDDV (g/mi) [1]	5.057	0.012	1.774	0.494	0.128	0.118
LDDT (g/mi) [1]	0.308	0.003	3.493	0.213	0.006	0.006
Forklift (lb/1000 hp-hr) [2]	22	1.9	15	4.21	2.7	2.62

(1) Air Emissions Guide for Air Force Mobile Sources, AFCEC (2020), Table 5-21

(2) Air Emissions Guide for Air Force Mobile Sources, AFCEC (2020), Table 3-6

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EPA CENTER FOR CORPORATE CLIMATE LEADERSHIP
U.S. Environmental Protection Agency

Emissions Summary

Guidance

The total GHG emissions from each source category are provided below. You may also use this summary sheet to fill out the *Annual GHG Inventory Summary and Goal Tracking Form* as this calculator only quantifies one year of emissions at a time.

https://www.epa.gov/climateleadership/center-corporate-climate-leadership-annual-ghg-inventory-summary-and-goal-tracking

By entering the data below into the appropriate cell of the *Annual GHG Inventory Summary and Goal Tracking Form,* you will be able to compare multiple years of data.

If you have multiple Calculator files covering sub-sets of your inventory for a particular reporting period, sum each of the emission categories (e.g. Stationary Combustion) to an organizational total, which then can be entered into the *Annual GHG Inventory Summary and Goal Tracking Form*.

(A) Enter organization information into the orange cells. Other cells on this sheet will be automatically calculated from the data entered in the sheets in this workbook. Blue cells indicate required emission sources if applicable. Green cells indicate scope 3 emission sources and offsets, which organizations may optionally include in their inventory.

(B) The "Go To Sheet" buttons can be used to navigate to the data entry sheets.

Organizational Information:

Organization Name:	Billings LAASF - Change of Emissions Only
	Montana Department of Military Affairs/MT Army National Guard
Organization Address:	1956 Mt Majo Street, P.O. Box 4789 Fort Harrison, MT 59636-4789
Inventory Reporting Period:	*Calendar year*
Start:	*1/1/2021*
End:	*12/31/2021*
Name of Preparer:	Nancy Shelton
Phone Number of Preparer:	602-686-3237
Date Prepared:	3/16/2022

Summary of Organization's Emissions:

Scope 1 Emissions

Go To Sheet	Stationary Combustion	35	CO_2-e (metric tons)
Go To Sheet	Mobile Sources	0	CO_2-e (metric tons)
Go To Sheet	Refrigeration / AC Equipment Use	0	CO_2-e (metric tons)
Go To Sheet	Fire Suppression	0	CO_2-e (metric tons)
Go To Sheet	Purchased Gases	0	CO_2-e (metric tons)

Location-Based Scope 2 Emissions

Go To Sheet	Purchased and Consumed Electricity	32	CO_2-e (metric tons)
Go To Sheet	Purchased and Consumed Steam	0	CO_2-e (metric tons)

Market-Based Scope 2 Emissions

Go To Sheet	Purchased and Consumed Electricity	40	CO_2-e (metric tons)
Go To Sheet	Purchased and Consumed Steam	0	CO_2-e (metric tons)

Total organization Emissions

Total Scope 1 & Location-Based Scope 2	66	CO_2-e (metric tons)
Total Scope 1 & Market-Based Scope 2	75	CO_2-e (metric tons)

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EPA CENTER FOR CORPORATE CLIMATE LEADERSHIP
U.S. Environmental Protection Agency

Emissions Summary

Guidance

The total GHG emissions from each source category are provided below. You may also use this summary sheet to fill out the *Annual GHG Inventory Summary and Goal Tracking Form* as this calculator only quantifies one year of emissions at a time.

https://www.epa.gov/climateleadership/center-corporate-climate-leadership-annual-ghg-inventory-summary-and-goal-tracking

By entering the data below into the appropriate cell of the *Annual GHG Inventory Summary and Goal Tracking Form,* you will be able to compare multiple years of data.

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(A) Enter organization information into the orange cells. Other cells on this sheet will be automatically calculated from the data entered in the sheets in this workbook. Blue cells indicate required emission sources if applicable. Green cells indicate scope 3 emission sources and offsets, which organizations may optionally include in their inventory.

(B) The "Go To Sheet" buttons can be used to navigate to the data entry sheets.

Organizational Information:

Organization Name:	Billings LAASF - Total Emissions
	Montana Department of Military Affairs/MT Army National Guard
Organization Address:	1956 Mt Majo Street, P.O. Box 4789 Fort Harrison, MT 59636-4789
Inventory Reporting Period:	*Calendar year*
Start:	*1/1/2021*
End:	*12/31/2021*
Name of Preparer:	Nancy Shelton
Phone Number of Preparer:	602-686-3237
Date Prepared:	3/16/2022

Summary of Organization's Emissions:

Scope 1 Emissions

Go To Sheet	Stationary Combustion	35	CO_2-e (metric tons)
Go To Sheet	Mobile Sources	1,053	CO_2-e (metric tons)
Go To Sheet	Refrigeration / AC Equipment Use	0	CO_2-e (metric tons)
Go To Sheet	Fire Suppression	0	CO_2-e (metric tons)
Go To Sheet	Purchased Gases	0	CO_2-e (metric tons)

Location-Based Scope 2 Emissions

Go To Sheet	Purchased and Consumed Electricity	32	CO_2-e (metric tons)
Go To Sheet	Purchased and Consumed Steam	0	CO_2-e (metric tons)

Market-Based Scope 2 Emissions

Go To Sheet	Purchased and Consumed Electricity	40	CO_2-e (metric tons)
Go To Sheet	Purchased and Consumed Steam	0	CO_2-e (metric tons)

Total organization Emissions

Total Scope 1 & Location-Based Scope 2	1,119	CO_2-e (metric tons)
Total Scope 1 & Market-Based Scope 2	1,128	CO_2-e (metric tons)